

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF OHIO
EASTERN DIVISION

FILED
CLERK OF COURT
2019 JUL 23 PM 4:11

UNITED STATES OF AMERICA,

Plaintiff,

vs.

YU ZHOU (1),

and

LI CHEN (2),

Defendants.

CASE NO. **2:19-cr-163**

JUDGE **Judge Marbley**

INDICTMENT

18 U.S.C. § 1832(a)(5)

18 U.S.C. §§ 1832(a)(1), (2), (3), (4) & 2

18 U.S.C. § 1349

18 U.S.C. § 1343

FORFEITURE

FILED UNDER SEAL

THE GRAND JURY CHARGES:

Introductory Allegations

The Victim

1. Nationwide Children's Hospital is a pediatric hospital located in Columbus, Ohio.
2. In furtherance of its mission, the Hospital also operates a related research institute, the Research Institute at Nationwide Children's Hospital, which conducts research to improve the health and quality of life for children and their families. The Research Institute, referred to in this Indictment as Nationwide Children's Hospital or NCH, owned all of the Trade Secrets and intellectual property at issue in this Indictment.
3. At all times relevant to this Indictment, NCH Doctor 1 and NCH Doctor 2 each directed a research lab within Nationwide Children's Hospital. Both labs conducted research related to exosomes and exosome isolation.
4. Exosomes are small membrane-bound sacs that are produced by human cells and that carry cell-derived components such as RNA, microRNA (or miRNA), and DNA. Exosomes play a key role in the research, identification, and treatment of a range of medical conditions,

including necrotizing enterocolitis (a condition sometimes found in premature babies), liver fibrosis, liver cancer, oral leukoplakia, oral cancer, endometriosis, and ovarian cancer. Exosomes are some of the smallest types of extracellular vesicles, with a diameter ranging between 30 and 150 nanometers. In order to be utilized fully for research, disease identification, and treatment, exosomes must first be separated from other non-exosome components. This process is sometimes referred to as exosome isolation.

The Defendants

5. **YU ZHOU** worked for Nationwide Children's Hospital conducting research related to exosomes and exosome isolation in the lab of NCH Doctor 1 from 2007 until **ZHOU** resigned in 2017. **ZHOU** is the spouse of **LI CHEN**.

6. **LI CHEN** worked for Nationwide Children's Hospital conducting research related to exosomes and exosome isolation in the lab of NCH Doctor 2 from 2008 until **CHEN** resigned in 2018. **CHEN** is the spouse of **ZHOU**.

The Theft

7. On or about the dates and times set forth below, **ZHOU** and **CHEN** conspired to, attempted to, and did steal valuable scientific trade secrets and other valuable property related to exosomes and exosome isolation from Nationwide Children's Hospital. **ZHOU** and **CHEN** acted without the knowledge and authorization of Nationwide Children's Hospital, and with the intent that their actions would benefit themselves and others outside of the Nationwide Children's Hospital.

Entities Used by the Defendants

8. Company 1 is a company **ZHOU** and **CHEN** founded in China in or around 2015 contrary to NCH's policies and without NCH's knowledge and authorization. Company 1 conducts business in China related to exosomes and exosome isolation. At times relevant to this

Indictment, without NCH's knowledge and authorization, and while **ZHOU** and **CHEN** were employed by NCH, Company 1 marketed products and services related to exosome isolation.

9. Company 2 is an American biotechnology company established in 2016 that conducts business related to exosomes and exosome isolation. Company 2 is the parent company of Company 3. Person A is the co-founder and CEO of Company 2.

10. Company 3, officially established in or around 2017 by **ZHOU** and Company 2 without the knowledge and authorization of NCH, is a biotechnology company that conducts business related to exosome-based diagnostic and therapeutic products. Company 3 markets what it describes as proprietary exosome isolation systems. **ZHOU** and Person A are co-CEOs of Company 3. As of 2019, Company 3's website advertised multiple products and services related to exosome isolation, including a "GET™ One Drop Exosome Isolation Kit," which is related to, and was developed from, Trade Secret 1. The "GET™ One Drop Exosome Isolation Kit" product promises the ability to "enrich exosomes from one drop of blood," which includes, according to the advertisement, the ability to isolate exosomes from 20 microliters of serum/plasma. As discussed below, during his time working at NCH, **ZHOU** worked with NCH Doctor 1 to develop Trade Secret 1, which allowed **ZHOU** and NCH Doctor 1 to isolate exosomes from between approximately 10 and 20 microliters of serum.

11. In or around October 2017, Company 3 acquired Company 1, which included the acquisition of all intellectual property, patents, and patent applications held by **ZHOU** concerning the business of researching, developing, and commercializing technologies and processes related to exosomes and exosome isolation.

NCH's Trade Secrets

12. Researchers at Nationwide Children's Hospital, including NCH Doctor 1 and NCH Doctor 2, and those who have worked in the respective labs of NCH Doctor 1 and NCH Doctor 2, conducted extensive work related to exosomes and exosome isolation. NCH devoted years of work and its own money to researching exosomes, which led to the discovery and creation of exosome-related trade secrets, as defined in 18 U.S.C. § 1839(3). Nationwide Children's Hospital's exosome-related trade secrets, which NCH considered confidential and proprietary, included but were not limited to the following:

a. **Trade Secret 1**, which consisted of a novel method of exosome isolation, particularly related to isolating exosomes from fluid samples as small as, and smaller than, approximately 20 microliters—all developed utilizing NCH's resources.

b. **Trade Secret 2**, which consisted of nonpublic exosome-related information, data, images, and analysis located in a file titled "6.30.17 Exosome in Beijing.pptx."

c. **Trade Secret 3**, which consisted of nonpublic exosome-related information, data, images, and analysis located in a file titled "ZhouTalk Beijing Exosome meeting.pdf.pptx."

d. **Trade Secret 4**, which consisted of nonpublic exosome-related information, data, images, and analysis located in a file titled "Figure-myography.pptx."

e. **Trade Secret 5**, which consisted of nonpublic exosome-related information, data, images, and analysis located in a file titled "57ae1b40b760826e85a6ca9a-ProposalPDF-201602."

13. Trade Secrets 1 through 5 are related to products and services used in and intended for use in interstate and foreign commerce.

14. NCH's discovery of Trade Secrets 1 through 5 was funded, at least in part, by federal grants. NCH's discovery of Trade Secrets 1 through 5, at least in part, played a role in NCH's receipt of federal grant funds.

15. Trade Secrets 1 through 5 derived independent economic value, actual and potential, from not being generally known to, and not being readily ascertainable through proper means by, another person who could obtain economic value from the disclosure or use of the information.

Reasonable Measures

16. NCH took reasonable measures to keep its trade secrets, including those in this Indictment, secret, including:

- a. NCH restricted physical access to research labs to key-card access by a small number of individuals.
- b. NCH required its employees to wear identification badges to limit access to restricted areas.
- c. NCH mandated that visitors to NCH facilities sign-in and wear identification badges.
- d. NCH required third parties to sign nondisclosure agreements before disclosing any confidential or trade secret information.
- e. Upon hiring, NCH's employees were required to sign a Confidentiality and Security Agreement, which restricted the use of all confidential information to the performance of employment duties related to NCH.
- f. Upon hiring, NCH's employees were required to sign acknowledgement of the employee handbook, which includes:
 - i. NCH's Research Conflict of Interest Policy, which required employees to disclose to NCH outside financial interests.
 - ii. NCH's Patents and Copyright Policy, which requires employees to disclose, among other things, patents and patent applications to NCH. The Patents and Copyright Policy prohibited publication and disclosure of inventions deriving from work at NCH without NCH authorization. The Patents and Copyright Policy further informed employees that NCH owned all

intellectual property developed or invented by its employees, including, unless otherwise stated by NCH or policy, any technical discoveries, inventions, and non-academic work of employees using NCH facilities.

- iii. NCH's Outside Activities Policy, which mandated a process for NCH to approve outside activities in order to avoid any conflicts of interest and commitment.
- g. NCH's computers displayed a Security Banner/Warning informing employees that NCH monitored computer activity, and that NCH's computer network was restricted.
- h. NCH also conducted periodic training for its employees on the handling of confidential information, scientific/business standards of conduct, the ownership of research data, and responsible research conduct, among other topics.

COUNT 1

(Conspiracy to Commit Theft of Trade Secrets)

17. Paragraphs 1 through 16 are re-stated and re-alleged as if fully set forth herein.

18. Beginning in or around 2013, the exact date being unknown to the Grand Jury, and continuing to the present, in the Southern District of Ohio, and elsewhere, the defendants, YU ZHOU and LI CHEN, together with others known and unknown to the Grand Jury, intending to convert a trade secret, which was related to a product and service used in and intended for use in interstate and foreign commerce, to the economic benefit of anyone other than the owner of that trade secret, and knowing and intending that the offense would injure the owner of that trade secret, conspired and agreed:

a. knowingly to steal, and without authorization appropriate, take, carry away, conceal, and by fraud, artifice, and deception obtain trade secrets belonging to Nationwide Children's Hospital;

b. knowingly and without authorization to copy, duplicate, sketch, draw, download, upload, alter, photocopy, replicate, transmit, deliver, send, communicate, and convey trade secrets belonging to Nationwide Children's Hospital; and

c. knowingly and without authorization to receive, buy, and possess trade secrets belonging to Nationwide Children's Hospital, knowing the same to have been stolen and appropriated, obtained, and converted without authorization.

Manner and Means of the Conspiracy

19. The manner and means by which the defendants sought to accomplish the objects of the conspiracy included, among others, the following:

a. It was part of the conspiracy that **ZHOU** and **CHEN** stole trade secrets and otherwise confidential information from their employer, Nationwide Children's Hospital.

b. It was further part of the conspiracy that **ZHOU** and **CHEN** conducted unauthorized business in China while they were employees at Nationwide Children's Hospital. For example, while conducting research related to exosomes and exosome isolation as employees at NCH with NCH's equipment and resources, **ZHOU** and **CHEN**: founded a Chinese biotechnology company specializing in products and services related to exosomes and exosome isolation; applied for Chinese patents related to exosomes and exosome isolation; participated in the submission of applications for funding related to exosomes and exosome isolation from various entities in China, including the National Natural Science Foundation of China; and organized and attended conferences related to exosomes and exosome isolation—all contrary to NCH's policies and without NCH's knowledge and authorization.

c. It was further part of the conspiracy that **ZHOU** and **CHEN** conducted unauthorized business in America while they were employees at Nationwide Children's Hospital. For example, while conducting research related to exosomes and exosome isolation as employees at NCH with NCH's equipment and resources, **ZHOU** and **CHEN** assisted in founding an

American biotechnology company that marketed products and services related to exosomes and exosome isolation—all contrary to NCH's policies without NCH's knowledge and authorization.

d. It was further part of the conspiracy that **ZHOU** and **CHEN** conducted unauthorized exosome research using NCH's equipment and resources while they were employees at NCH—all contrary to NCH's policies and without NCH's knowledge and authorization.

e. It was further part of the conspiracy that **ZHOU** and **CHEN** took unauthorized steps to transfer work they performed for NCH, or unauthorized work generated using NCH's equipment and resources, to locations outside of NCH while they were employees at NCH. For example, while conducting research related to exosomes and exosome isolation as employees at NCH, **ZHOU** and **CHEN** sent emails containing NCH's exosome-related and exosome-isolation trade secrets and intellectual property to external email accounts associated with **ZHOU** and **CHEN**, some which were tied to host servers located in China—all contrary to NCH's policies and without NCH's knowledge and authorization.

f. It was further part of the conspiracy that **ZHOU** and **CHEN** conducted unauthorized travel to China while they were employees at Nationwide Children's Hospital. For example, while using NCH's resources and equipment to conduct research related to exosomes and exosome isolation as employees at NCH, **ZHOU** and **CHEN** organized and attended conferences in China related to exosomes and exosomes isolation. **ZHOU** and **CHEN** also traveled to China and, while there, engaged in paid interaction with China's State Administration of Foreign Expert Affairs, a Chinese governmental agency responsible for coordinating the transfer of foreign intellectual property located abroad to China. These activities were all contrary to NCH's policies and without NCH's knowledge and authorization.

g. It was further part of the conspiracy that **ZHOU** and **CHEN** conducted the above unauthorized business, research, travel, and transfer of work related to exosomes and exosome isolation with the intent to benefit themselves and others outside of NCH—all contrary to NCH’s policies and without NCH’s knowledge and authorization, and using NCH’s resources and equipment.

Overt Acts

20. On or about the dates that follow, in furtherance of the conspiracy and to effect its objects, the defendants, together with others known and unknown to the Grand Jury, within the Southern District of Ohio and elsewhere, committed overt acts, including but not limited to those that follow, all of which, unless otherwise stated, were taken without the knowledge and authorization of NCH, and using NCH’s resources.

a. On or about May 27, 2013, **CHEN**, using NCH’s equipment and resources, created a Powerpoint file titled “Cervical Cancer Data for [Last Name of Person B].ppt.” Person B is a Chinese national not affiliated with NCH who works at the Beijing Obstetrics and Gynecology Hospital of the Capital Medical University in Beijing, China.

b. On or about September 8, 2014, **CHEN**, using NCH’s equipment and resources, created a spreadsheet file titled “09.08.14([last name of Person B]).xlsx.”

c. On or about January 6, 2015, **ZHOU** sent an email from his personal account with a document attached, according to which **CHEN**, on January 5, 2015, attended a meeting in China regarding exosome research and the potential formation of an exosome-related company with **ZHOU**.

d. On or about February 6, 2015, **ZHOU** sent an email from his NCH email address carbon copying **CHEN**’s NCH email address. In the email, **ZHOU** explained that he had been

authorized by the International Technology Transfer Network (ITTN), a professional organization located in China committed to promoting international technology transfer to China, “to organize an exosome science meeting,” the goal of which was “to incorporate cutting-edge[]exosome[]technology[]to abundant biospecimen resource[s] in China.”

e. On or about February 15, 2015, **CHEN** sent an email from her NCH email account to her personal email address with a word-processing document attached titled “test.docx.” The “test.docx” document contained an image, dated January 15, 2015, indicating that **ZHOU** became a member of ITTN. The document also contained the text of a letter inviting a third party to the “China Exosome Research Conference” on April 22, 2015, at the Beijing International Convention Center; the letter purported to be from **ZHOU**, who was listed as the “General Secretary of China Exosome Research Conference 2015.”

f. On or about February 22, 2015, **CHEN** sent an email from her NCH account to her personal email account. Attached to the email was a word-processing file titled “[Person C] invitation letter.docx”; in the letter, which includes an image of **CHEN**’s signature, **CHEN**, acting without the authorization or knowledge of Nationwide Children’s Hospital, invited Person C to be a “visiting Scholar” at Nationwide Children’s Hospital. Person C is a Chinese national not affiliated with NCH who works at the Beijing Stomatological Hospital of the Capital Medical University in Beijing, China.

g. On or about March 3, 2015, **CHEN** sent an email from her NCH address to her personal address. Attached to the email was a grant application to the National Natural Science Foundation of China for funding for a research project related to the study of exosomes, MiR-503, and the development of chemotherapy resistance in ovarian cancer; the application listed **CHEN**

as a project participant and Person B as the project lead. **CHEN** did not seek NCH approval for her participation in the project.

h. In or around in 2015, **ZHOU** and **CHEN**, acting without the authorization of NCH, formed Company 1 in Beijing, China.

i. On or about October 4, 2015, **CHEN** sent an email from her NCH account to her personal account; attached to the email was a spreadsheet file titled “[Last Name of Person C] RNA dosage (10.04.15).xlsx,” which concerned exosome-related information regarding cancer diagnosis and therapy.

j. On or about December 13, 2015, **CHEN** sent an email from her personal email account to Person C at an email address hosted on servers in China; attached to the email was a Powerpoint file titled “[last name of Person C] (2016.01) poster.ppt.”

k. On or about January 10, 2016, **ZHOU** sent an email from his China-based email address ending in “@163.com” to an email address ending in “@163.com” regarding a progress update for Company 1. Attached to the email was a document regarding Company 1 that referred to a pending application to a Beijing talent plan.

l. On or about August 17, 2016, **ZHOU** and **CHEN**, acting without the authorization of NCH, filed two patent applications in China related to, among other things, exosome-isolation kits and the isolation of exosomes from a small amount of serum. One application concerned exosomes, miRNA-33b, and the diagnosis of liver cancer; this application contained information related to Trade Secret 1, as well as information related to exosomes derived from healthy human serum, which was similar to work performed in the lab of NCH Doctor 2.

m. On or about November 1, 2016, **CHEN** sent an email from her personal account to, among others, **ZHOU** at his China-based email address ending in “@163.com.” Attached to the

email were: a spreadsheet file regarding **ZHOU**'s performance in 2016 as an expert for a project administered by the Beijing Foreign Experts and Foreigners Employment Affairs Center; a word-processing document related to **CHEN**'s performance in 2016 as an expert on behalf of Company 1 for a project administered by China's State Administration of Foreign Expert Affairs; and an expert registration form listing **CHEN** as employed by Nationwide Children's Hospital.

n. On or about November 22, 2016, **CHEN** used NCH's NanoSight machine to conduct unauthorized research and then to create a related video file titled "[Shortened Name of Company 3] kit isolated serum exosomes," which was the property of NCH.

o. On or about December 5, 2016, **ZHOU** saved a product sheet related to Company 1 titled "manual_GE300.pdf" onto NCH's server.

p. On or about February 26, 2017, **ZHOU** sent an email from his personal email account to his China-based email address ending in "@163.com" attaching a financial statement related to Company 1 titled "[Shortened Name of Company 1].docx."

q. On or about April 14, 2017, **CHEN** forwarded an email from her personal email address to **ZHOU**'s personal email address. The email **CHEN** forwarded was from an individual identified as ITTN's Manager of Industrial Cooperation Department regarding, in relevant part, **CHEN**'s purchase of Company 1 stock.

r. On or about April 27, 2017, **ZHOU** sent an email from his China-based email address ending in "@163.com" to his personal email address. Attached to the email was a file titled "[Shortened Name of Company 3]-- 2017.pdf," which consisted of NCH's exosome-related information, data, images, and analysis, all of which NCH considered proprietary and non-public.

s. On or about May 7, 2017, **CHEN** sent an email from her personal email address to, among others, **ZHOU** at his personal email address. Attached to the email was a file titled "ISEV

Poster (05.07.17).ppt”; at the top of file were the words “CHARACTERIZATION OF SALIVA EXOSOMES AND EXOSOMAL MICRORNAS IN PATIENTS WITH ORAL LEUKOPLAKIA,” which were flanked on one side by a graphic for the “Beijing Stomatological Hospital” and on the other side by a graphic for NCH. A sentence of text at the bottom corner of the document stated: “This work is funded by China, Beijing Municipal Administration of Hospitals Key Medical Project (ZYLX201407).”

t. On or about May 11, 2017, **ZHOU** and **CHEN**, acting without the authorization of NCH, filed a patent application in China regarding exosomes, oral leukoplakia, and oral cancer.

u. On or about May 19, 2017, **ZHOU** forwarded an email from his China-based email address ending in “@163.com” to his personal email address. Attached to the email was a word-processing document titled “Meeting Minutes - [Shortened Name of Company 3] Meeting BJ 2017Apr19.docx,” according to which **ZHOU** and Person A, among others, attended a meeting in China on or about April 19, 2018, regarding, in part: Company 3’s and Company 2’s business dealings related to exosome isolation kits; clinical studies in China related to liver fibrosis and various types of cancer; and the International Scientific Forum on Exosome Research and Application (ISFARA) scheduled to occur on June 30, 2017.

v. On or about June 21, 2017, **CHEN** used NCH’s NanoSight machine to conduct unauthorized research and then to create related files titled “CExo. 2017-06-21 10-53-17-ExperimentReport.pdf” and “06.21.2017 UExo. 2017-06-21 10-38-25-ExperimentReport.pdf,” both of which were the property of NCH. (One graph from each file was included on a GET™ Exosome Isolation Kit product sheet available on Company 3’s website as of 2019.)

w. On or about June 30, 2017, through on or about July 1, 2017, **ZHOU** and **CHEN**, acting without the authorization of NCH, as well as Person A, attended and participated in the

International Scientific Forum on Exosome Research and Application (ISFARA), an event in Beijing that was hosted in part by Company 1 and sponsored by Company 2 and Company 3.

x. On or about June 30, 2017, **CHEN**, acting without the authorization of NCH, disclosed Trade Secret 2 during an ISFARA presentation related to exosomes.

y. On or about June 30, 2017, **ZHOU**, acting without the authorization of NCH, disclosed Trade Secret 3 during an ISFARA presentation related to exosomes.

z. On or about July 14, 2017, **CHEN** sent an email from her NCH account to **ZHOU** at his personal email account. Attached to the email was a word document that included language from NCH's employment policies regarding NCH's ownership of discoveries and/or inventions developed by anyone employed by NCH, as well as NCH's ownership of patents and copyrights related to research conducted at NCH.

aa. On or about August 1, 2017, **ZHOU** received a payment from China's State Administration of Foreign Expert Affairs regarding technical direction and exchange provided during the following time periods: April 16, 2017, to April 24, 2017; June 10, 2017, to June 18, 2017; and June 27, 2017, to July 4, 2017.

bb. On or about August 1, 2017, **CHEN** received a payment from China's State Administration of Foreign Expert Affairs regarding technical direction and exchange provided during the following time periods: February 16, 2017, to February 21, 2017; March 17, 2017, to March 27, 2017; and June 28, 2017, to July 4, 2017.

cc. On or about August 8, 2017, **CHEN** sent an email from her personal email account to **ZHOU** at his personal email account. Attached to the email was a document evaluating **ZHOU's** and **CHEN's** participation as experts in 2017 regarding a project administered by the State Administration of Foreign Expert Affairs.

dd. On or about August 14, 2017, **CHEN** emailed, from her NCH email account to her personal email address, a draft recommendation letter purporting to be written by Person A in support of **CHEN**'s application to the Beijing Overseas Talent Plan; the letter referred to **CHEN**'s role at Nationwide Children's Hospital as a researcher, including her work researching exosomes and exosome isolation.

ee. On or about August 24, 2017, **CHEN** emailed Trade Secret 4 from her NCH email account to **ZHOU** at his China-based email address ending in "@163.com."

ff. On or about August 25, 2017, **CHEN** sent an email from her personal address to an address ending in "@163.com." Attached to the email was a grant application to the National Natural Science Foundation of China for funding for a research project related to oral leukoplakia and exosome-related microRNA therapy; the application, which listed **CHEN** as a participant and Person C as the project lead, contained Trade Secret 5. **CHEN** did not seek NCH approval for her participation in the project.

gg. On or about August 26, 2017, **ZHOU** forwarded an email from his China-based email address ending in "@163.com" to **CHEN** at her personal email address. The email contained an attachment concerning Company 1's work related to exosomes and exosome isolation, as well as Company 1's partnership with Beijing Daopei Medical Group and Company 2.

hh. On or about August 27, 2017, a document titled "slides for [Company 3].pptx," which contained NCH's data and concepts related to exosomes and liver fibrosis, was created using NCH equipment and resources at the direction of **CHEN** and **ZHOU**.

ii. On or about August 27, 2017, **CHEN** sent an email from her personal account to **ZHOU** at his China-based email address ending in "@163.com." Attached to the email was a document concerning oral leukoplakia, oral cancer, and exosome isolation.

jj. On or about September 15, 2017, **CHEN** used NCH's NanoSight machine to conduct unauthorized research and then to create related files titled "[Last Name of Person C] BMMSC 80 2017-09-15 15-39-40-ExperimentReport.pdf" and "MSC 80 2017-09-15 15-32-46-ExperimentReport.pdf," both of which were the property of NCH.

kk. On or about September 26, 2017, **CHEN** used NCH's NanoSight machine to conduct unauthorized research and then to create a related file titled "09.26.17 [Last Name of Person C] 2017-09-26 15-09-13-ExperimentReport.pdf," which was the property of NCH.

ll. On or about October 4, 2017, **CHEN** emailed, from her NCH email account to her personal email account, images of exosomes located in a file titled "Cryo TEM copy.jpg," all of which NCH considered proprietary and non-public.

mm. On or about October 8, 2017, **ZHOU** notified NCH Doctor 1 of **ZHOU**'s resignation, effective on or about November 10, 2017; his last physical day in the lab was on or about October 27, 2017.

nn. On or about October 20, 2017, **ZHOU** sent an email from his China-based email account ending in "@[shortened name of company 3].com" to his personal email address with documents attached regarding, among other things, the execution of the Asset Purchase Agreement between **ZHOU** and Company 3.

oo. On or about October 20, 2017, **ZHOU** sent an email from his personal email address to his China-based email account ending in "@[shortened name of company 3].com" with a document attached regarding Company 3's business relationship with Daopei Hospital Medical Research Center.

pp. On or about October 23, 2017, **CHEN** sent an email from her personal email account to **ZHOU** at his China-based email address ending in "@163.com" with the following

images of exosomes attached: “balbcmale 100k-1.tif,” “swmale kit 100k-3.tif,” and “swmale kit 100k-4.tif.” The images, which were the property of NCH, were generated using NCH’s equipment and resources.

qq. On or about October 25, 2017, **ZHOU** emailed, from his personal email account to himself at his China-based email account ending in “@[shortened name of company 3].com,” a file titled “GET200 flyer (06.21.2017).pptx.” The file contained information, images, and analysis generated using NCH’s equipment and resources, as well as information, images, and analysis related both to Trade Secret 1 and to work performed in the labs of NCH Doctor 1 and NCH Doctor 2 during **ZHOU**’s and **CHEN**’s respective tenures at NCH.

rr. On or about October 25, 2017, **ZHOU** and **CHEN** participated in the execution of the Asset Purchase Agreement between **ZHOU** and **CHEN**, and Company 3, according to which Company 3 acquired all assets, including all exosome-related intellectual property, held by **ZHOU** and **CHEN**, in exchange for **ZHOU** and **CHEN** receiving, among other things, \$876,087 in cash.

ss. On or about October 27, 2017, **CHEN** used NCH’s NanoSight machine to conduct unauthorized research and then to create related files titled “PEG 600 serum 2017-10-27 10-38-25-ExperimentReport.pdf” and “PEG cell media 2017-10-27 10-30-29-ExperimentReport.pdf,” both of which were the property of NCH.

tt. On or about October 30, 2017, **ZHOU** participated in a press release regarding, among other things, Company 3’s acquisition of Company 1, a purportedly proprietary exosome isolation system Company 2 and Company 3 had acquired from **ZHOU** and **CHEN**, and research kits and services related to exosome isolation.

uu. On or about October 31, 2017, **CHEN** sent an email from her personal email account to **ZHOU** at his China-based email account ending in “@[shortened name of company

3].com” with a file attached titled “2017 10.31 DNA isolation.xlsx,” which was the property of NCH.

vv. On or about November 20, 2017, **CHEN** used NCH’s NanoSight machine to conduct unauthorized research and then to create a related file titled “XY1 test 2017-11-20 15-40-00-ExperimentReport.pdf,” which was the property of NCH.

ww. On or about November 20, 2017, **CHEN** sent an email from her NCH email account to **ZHOU** at his China-based email account ending in “@[shortened name of company 3].com” with a file attached titled “XY1 test 2017-11-20 15-40-00-ExperimentReport.pdf,” which was the property of NCH.

xx. Between on or about November 20, 2017, and on or about November 27, 2017, **ZHOU** and **CHEN** received four wire transfers from Company 2 totaling approximately \$876,087.

yy. On or about November 21, 2017, **CHEN** sent an email from her NCH email account to **ZHOU** at his China-based email account ending in “@[shortened name of company 3].com.” Attached to the email were the following files, each of which contained images of exosomes that NCH considered nonpublic and proprietary: “sample 1 45k-1.tif,” “sample 2 50k-1.tif,” “sample 5 50k-4.tif,” and “sample 5 50k-5.tif.”

zz. On or about November 25, 2017, **ZHOU** received a payment from China’s State Administration of Foreign Expert Affairs regarding technical direction and exchange provided during the following time periods: September 24, 2017, to October 2, 2017; and October 29, 2017, to November 8, 2017.

aaa. On or about November 25, 2017, **CHEN** received a payment from China’s State Administration of Foreign Expert Affairs regarding technical direction and exchange provided

during the following time periods: October 11, 2017, to October 18, 2017; and November 13, 2017, to November 19, 2017.

bbb. On or about November 27, 2017, **CHEN** used NCH's NanoSight machine to conduct unauthorized research and then to generate related files titled "P.S 101 2017-11-27 15-41-03-ExperimentReport.pdf" and "P.S 101 2017-11-27 15-29-32-Experiment."

ccc. On or about December 1, 2017, **CHEN** emailed, from her NCH email account to her personal email address, a file titled "report with NTA analysis.pptx," which was the property of NCH, and which contained an image and video related to unauthorized exosome research **CHEN** conducted using NCH's equipment and resources.

ddd. On or about December 4, 2017, **CHEN** emailed, from her NCH email account to both her personal email address and **ZHOU** at his China-based email account ending in "@[shortened name of company 3].com," two image files titled "Serum DNA and exosomal DNA by Nanodrop 2000c.jpg" and "Exosomal DNA by Nanodrop 2000c.jpg." The image files contained graphs and analysis related to unauthorized exosome research **CHEN** conducted using NCH's equipment and resources.

eee. On or about December 5, 2017, **CHEN** sent an email from her personal email account to, among others, **ZHOU** at his China-based email account ending in "@163.com." Attached to the email was a document concerning **ZHOU**'s role as a manager on an exosome-related project for Company 1; the document listed **CHEN** as Company 1's legal representative.

fff. On or about December 13, 2017, **CHEN** sent an email from her NCH email account to her personal email address and to **ZHOU** at his China-based email account ending in "@[shortened name of company 3].com." Attached to the email was a file titled "Classic exosomes.pptx," which contained images of exosomes NCH considered nonpublic and

proprietary. (“Classic exosomes.pptx” contained, among others, exosome images titled “swfemale 20k-1.tif” and “sample 5 50k-4.tif,” both of which were used on a GET™ Exosome Isolation Kit product sheet available on Company 3’s website as of 2019.)

ggg. On or about December 20, 2017, **CHEN** sent an email from her NCH email account to her personal email address. Attached to the email was a file titled “PS test.pptx,” which contained, among others, an exosome image NCH considered nonpublic and proprietary titled “2.20.17 AML-12 Ctrl_013.”

hhh. On or about January 30, 2018, **CHEN** copied and took Trade Secret 2 from NCH without authorization.

iii. On or about January 31, 2018, **CHEN** resigned from her position at NCH.

jjj. On or about February 14, 2018, **ZHOU** participated in a press release announcing Company 3’s plans to market and distribute what it referred to as the Company’s proprietary exosome isolation systems from its headquarters in Ohio.

kkk. On or about April 24, 2018, **ZHOU** participated in a press release announcing Company 3’s formation of a partnership with the Shanghai Ninth People’s Hospital to establish a joint laboratory in regenerative exosomics. Under the partnership, the laboratory would combine Company 2’s purportedly proprietary exosome isolation technology with the Shanghai Ninth People’s Hospital clinical expertise.

lll. On or about May 10, 2018, **ZHOU** and **CHEN** filed a patent application in China regarding exosomes and oral cancer.

All in violation of 18 U.S.C. § 1832(a)(5).

COUNTS 2 through 4
(Theft of Trade Secrets)

21. Paragraphs 1 through 20 are re-stated and re-alleged as if fully set forth herein.

22. On the dates set forth below, in the Southern District of Ohio and elsewhere, the defendants listed in the separate counts below, together with others known and unknown to the Grand Jury, intending to convert a trade secret, which was related to a product and service used in and intended for use in interstate and foreign commerce, to the economic benefit of anyone other than the owner of that trade secret, and knowing and intending that the offense would injure the owner of that trade secret, as specifically alleged in each of the Counts below:

a. knowingly stole, and without authorization appropriated, took, carried away, concealed, and by fraud, artifice, and deception obtained trade secrets belonging to Nationwide Children's Hospital;

b. knowingly and without authorization copied, duplicated, sketched, drew, downloaded, uploaded, altered, photocopied, replicated, transmitted, delivered, sent, communicated, and conveyed trade secrets belonging to Nationwide Children's Hospital;

c. knowingly and without authorization received, bought, and possessed trade secrets belonging to Nationwide Children's Hospital, knowing the same to have been stolen and appropriated, obtained, and converted without authorization; and

d. knowingly attempted to commit any of the violations alleged in Counts 2 through 4 below.

COUNT	APPROX. DATE	DEF.	ACTION	TRADE SECRET
2	10/30/17–Date of Indictment	ZHOU CHEN	ZHOU and CHEN stealing, and without authorization appropriating, taking, carrying away, and concealing, and by fraud, artifice, and deception obtaining Trade Secret 1, in violation of 18 U.S.C. §§ 1832(a)(1) & 2	Trade Secret 1
3	August 24, 2017	CHEN ZHOU	CHEN sending email, in violation of 18 U.S.C. §§ 1832(a)(1), (2), (4) & 2; ZHOU receiving email, in violation of 18 U.S.C. §§ 1832(a)(3), (4) & 2	Trade Secret 4
4	January 30, 2018	CHEN	CHEN taking and duplicating Trade Secret 2 without authorization, in violation of 18 U.S.C. §§ 1832(a)(1) & (2)	Trade Secret 2

COUNT 5
(Conspiracy to Commit Wire Fraud)

23. Paragraphs 1 through 20 are re-stated and re-alleged as if fully set forth herein.

24. Beginning in or around 2013, the exact date being unknown to the Grand Jury, and continuing to the present, in the Southern District of Ohio, and elsewhere, the defendants, **YU ZHOU** and **LI CHEN**, together with others known and unknown to the Grand Jury, did knowingly and intentionally conspire and agree to commit an offense against the United States, that is, to devise and intend to devise a scheme and artifice to defraud as to a material matter, and to obtain money and property by means of materially false and fraudulent pretenses, representations, and promises, and material omissions, and to deprive Nationwide Children’s Hospital of its intangible right to **ZHOU**’s and **CHEN**’s honest services, and in furtherance of the scheme used wire communications in interstate and foreign commerce, in violation of 18 U.S.C. § 1343.

Manner and Means of the Conspiracy

25. The objects of the conspiracy were carried out, in part, as alleged in Paragraphs 19 and 20.

All in violation of 18 U.S.C. § 1349.

COUNTS 6 through 27
(Wire Fraud)

26. Paragraphs 1 through 20 are re-stated and re-alleged as if fully set forth herein.

27. Beginning in or around 2013, the exact date being unknown to the Grand Jury, and continuing to the present, in the Southern District of Ohio, and elsewhere, the defendants, **YU ZHOU** and **LI CHEN**, together with others known and unknown to the Grand Jury, did knowingly and with the intent to defraud, devise and intend to devise a scheme and artifice to defraud as to a material matter, and to obtain money and property by means of materially false and fraudulent pretenses, representations, promises, and omissions, and to deprive Nationwide Children's Hospital of its intangible right to **ZHOU's** and **CHEN's** honest services.

28. On or about the dates set forth in the separate counts below, in the Southern District of Ohio and elsewhere, for the purpose of executing the scheme and artifice to defraud Nationwide Children's Hospital of its intangible right to **ZHOU's** and **CHEN's** honest services and to obtain money and property by means of materially false and fraudulent pretenses, representations, promises, and material omissions, Defendants **ZHOU** and **CHEN** did knowingly transmit and cause to be transmitted by means of wire, radio, and television communication in interstate and foreign commerce the following writings, signs, signals, pictures, and sounds, each communication being a separate count of this indictment:

COUNT	APPROX. DATE	DEF.	WIRE TRANSACTION
6	January 6, 2015	ZHOU	Email attaching document regarding meeting in China on January 5, 2015
7	February 6, 2015	ZHOU CHEN	Email regarding ITTN
8	February 15, 2015	CHEN	Email regarding ITTN
9	February 22, 2015	CHEN	Email attaching "[Person C] invitation letter.docx"
10	March 3, 2015	CHEN	Email attaching NSFC grant listing CHEN as a project participant and Person B as the project lead
11	October 4, 2015	CHEN	Email attaching "[Last Name of Person C] RNA dosage (10.04.15).xlsx"
12	January 10, 2016	ZHOU	Email regarding a progress update for Company 1
13	February 26, 2017	ZHOU	Email attaching "[Shortened Name of Company 1].docx"
14	April 14, 2017	CHEN ZHOU	Email regarding CHEN's purchase of Company 1 stock
15	April 27, 2017	ZHOU	Email attaching "[Shortened Name of Company 3]--2017.pdf"
16	May 7, 2017	CHEN ZHOU	Email attaching "ISEV Poster (05.07.17).ppt"
17	August 14, 2017	CHEN	Email attaching a draft recommendation letter regarding CHEN's application to the Beijing Overseas Talent Plan
18	August 24, 2017	CHEN ZHOU	Email attaching Trade Secret 4
19	August 26, 2017	ZHOU	Email with an attachment concerning, among other things, Company 1's partnership with Beijing Daopei Medical Group and Company 2
20	August 27, 2017	CHEN ZHOU	Email with an attachment concerning oral leukoplakia, oral cancer, and exosome isolation
21	October 4, 2017	CHEN	Email attaching "Cryo TEM copy.jpg"
22	November 20, 2017	CHEN ZHOU	Email attaching "XY1 test 2017-11-20 15-40-00-ExperimentReport.pdf," which was the property of NCH
23	November 21, 2017	CHEN ZHOU	Email attaching "sample 1 45k-1.tif," "sample 2 50k-1.tif," "sample 5 50k-4.tif," and "sample 5 50k-5.tif"
24	December 1, 2017	CHEN ZHOU	Email attaching "report with NTA analysis.pptx," which was the property of NCH
25	December 4, 2017	CHEN ZHOU	Email attaching "Serum DNA and exosomal DNA by Nanodrop 2000c.jpg" and "Exosomal DNA by Nanodrop 2000c.jpg," which were generated using NCH equipment and resources
26	December 13, 2017	CHEN ZHOU	Email attaching "Classic exosomes.pptx"
27	December 20, 2017	CHEN	Email attaching "PS test.pptx"

All in violation of 18 U.S.C. §§ 1343 & 2.

FORFEITURE ALLEGATION A

29. The allegations of this Indictment are re-alleged and by this reference fully incorporated herein for the purpose of alleging forfeitures to the United States of America pursuant to 18 U.S.C. §§ 1834 and 2323.

30. Upon conviction of any of the offenses alleged in Counts 1 through 4 of this Indictment, the defendants shall forfeit to the United States of America, pursuant to 18 U.S.C. §§ 1834 and 2323, any property used, or intended to be used, in any manner or part to commit or facilitate the commission of such offenses, and any property constituting or derived from any proceeds obtained directly or indirectly as a result of the commission of such offenses, including but not limited to the following:

- a. \$876,087.00 in United States currency in the form of a forfeiture money judgment;
- b. All rights to receive a \$450,000.00 cash payment from Genexosome Technologies, Inc., as a result of the “Stock Purchase Agreement” made and entered into as of October 25, 2017, between Genexosome Technologies, Inc., and Defendant YU ZHOU, and Beijing Jieteng (GenExosome) Bitoech Co. Ltd.;
- c. 500,000 shares of common stock of Avalon GloboCare Corp.; and
- d. 400 shares of common stock of Genexosome Technologies, Inc.

31. Substitute Assets: If any of the property described above, as a result of any act or omission of a defendant—

- a. cannot be located upon the exercise of due diligence;
- b. has been transferred or sold to, or deposited with, a third party;
- c. has been placed beyond the jurisdiction of the Court;
- d. has been substantially diminished in value; or
- e. has been commingled with other property that cannot be subdivided without difficulty—

the United States of America, pursuant to 21 U.S.C. § 853(p), as incorporated by 18 U.S.C. § 2323(b), shall be entitled to seek forfeiture of any other property of the defendant up to the value of the above forfeitable property.

Forfeiture in accordance with 18 U.S.C. §§ 1834 and 2323 and Rule 32.2 of the Federal Rules of Criminal Procedure.

FORFEITURE ALLEGATION B

32. The allegations of this Indictment are re-alleged and by this reference fully incorporated herein for the purpose of alleging forfeitures to the United States of America pursuant to 18 U.S.C. § 981(a)(1)(C) and 28 U.S.C. § 2461(c).

33. Upon conviction of any of the offenses as alleged in Counts 5 through 27 of the Indictment, the defendants shall forfeit to the United States, pursuant to 18 U.S.C. § 981(a)(1)(C) and 28 U.S.C. § 2461(c), any property, real or personal, constituting or derived from proceeds traceable to such offense, or a conspiracy to commit such offense, including but not limited to the following:

- a. \$876,087.00 in United States currency in the form of a forfeiture money judgment;
- b. All rights to receive a \$450,000.00 cash payment from Genexosome Technologies, Inc., as a result of the “Stock Purchase Agreement” made and entered into as of October 25, 2017, between Genexosome Technologies, Inc., and Defendant YU ZHOU, and Beijing Jieteng (GenExosome) Bitoech Co. Ltd.;
- c. 500,000 shares of common stock of Avalon GloboCare Corp.; and
- d. 400 shares of common stock of Genexosome Technologies, Inc.

34. Substitute Assets: If any of the property described above, as a result of any act or omission of a defendant—

- a. cannot be located upon the exercise of due diligence;

- b. has been transferred or sold to, or deposited with, a third party;
- c. has been placed beyond the jurisdiction of the Court;
- d. has been substantially diminished in value; or
- e. has been commingled with other property that cannot be subdivided without difficulty—

the United States of America, pursuant to 21 U.S.C. § 853(p), as incorporated by 28 U.S.C. § 2461(c), shall be entitled to seek forfeiture of any other property of the defendant up to the value of the above forfeitable property.

Forfeiture in accordance with 18 U.S.C. § 981(a)(1)(C), 28 U.S.C. § 2461(c), and Rule 32.2 of the Federal Rules of Criminal Procedure.

A TRUE BILL.

s/ Foreperson
FOREPERSON

**BENJAMIN C. GLASSMAN
UNITED STATES ATTORNEY**


**S. COURTER SHIMEALL (OH 0090514)
Assistant United States Attorney**